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### **DETAILED ACTION**

The amendment filed September 27, 2010 is acknowledged and entered. The proposed amendment to the claims submitted on December 13, 2010 is acknowledged and entered.

#### ***Title***

The title has been changed to read -- Method of reproducing conifers by somatic embryogenesis using lactose as a carbon source --.

#### ***Examiner's Amendment***

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Lynda Fitzpatrick on December 14, 2010. The informal proposed amendment to the claims is reproduced below.

#### **IN THE CLAIMS:**

Claims 2-4, 7-12, 15, 18, 23-42, 44-51, and 61 have been cancelled without prejudice.

1.(Currently Amended) A method for reproducing coniferous somatic embryos by somatic embryogenesis comprising

growing on a nutrient medium an immature embryogenic culture derived from an explant, [[on a]]the nutrient medium selected from the group consisting of induction medium, maintenance medium and prematuration medium, and [[wherein]] the nutrient medium ~~comprises~~comprising lactose [[and an additional sugar]],

wherein the coniferous somatic embryos are *Pinus taeda* somatic embryos or hybrids thereof, and

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wherein when the nutrient medium is the induction medium, growing the immature embryonic culture comprises inducing ~~[[is used to induce an]]~~ the explant to form an embryogenic tissue,

wherein when the nutrient medium is the maintenance medium, growing the immature embryonic culture comprises .growing and maintaining ~~[[is used to grow and maintain]]~~ the embryogenic culture, and

wherein when the nutrient medium is the prematuration medium, growing the immature embryonic culture further comprises transferring ~~[[is used to prepare]]~~ the embryogenic culture ~~[[for transfer]]~~ from the prematuration medium to maturation medium ~~[[and]]~~ for subsequent development of mature embryos capable of germination ~~[[, wherein the coniferous somatic embryos are *Pinus taeda* somatic embryos or hybrids thereof, and wherein the maturation medium does not contain auxin or cytokinin]]~~.

2-4. (Canceled)

5. (Currently Amended) The method of claim 1, wherein the lactose is less than 6.0 ~~[[wt.]]~~ % (w/v) of the nutrient medium.

6. (Previously Presented) The method of claim 1, wherein the nutrient medium is gelled or liquid.

7.-12. (Canceled)

13. (Currently Amended) The method of claim 1, wherein the nutrient medium is the maintenance medium, wherein the maintenance medium comprises an auxin and a cytokinin, and wherein growing the immature embryonic culture further comprises transferring the embryonic culture from the maintenance medium to a prematuration medium ~~[[contains]]~~ containing less auxin and less cytokinin than the maintenance medium.

14. (Currently Amended) The method of claim 1, wherein when the nutrient medium is the prematuration medium, and wherein the prematuration medium further comprises abscisic acid.

15. (Canceled)

16. (Currently Amended) The method of claim ~~[[1]]~~66, wherein the additional ~~[[sugars are]]~~ sugar is readily metabolized.

17. (Currently Amended) The method of claim 16, wherein the additional ~~[[sugars are]]~~ sugar is selected from the group consisting of sucrose, glucose, and fructose.

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18. (Canceled)

19. (Currently Amended) The method of claim 1, wherein the immature embryogenic culture contains early stage embryos.

20. (Currently Amended) The method of claim 1, wherein the lactose is less than 2.0 [[wt]] % (w/v) of the nutrient medium.

21. (Currently Amended) The method of claim 1, wherein the lactose is between 1.0 [[wt]] % (w/v) and 6.0 [[wt]] % (w/v) of the nutrient medium.

22. (Previously Presented) The method of claim 1, wherein the nutrient medium further comprises an auxin and a cytokinin.

23.-42. (Canceled)

43. (Currently Amended) A method for reproducing conifers by somatic embryogenesis which comprises:

growing *Pinus taeda* conifer cells on a nutrient medium comprising lactose, [[an additional sugar,]] an auxin, and a cytokinin to produce an immature embryogenic culture; and transferring the immature embryogenic culture to maturation medium to obtain mature embryos capable of germination and reproduction of conifer[[, and wherein the maturation medium does not contain auxin or cytokinin]].

44.-51. (Canceled)

52. (Currently Amended) The method of claim [[50]]66, wherein the lactose comprises [[1wt % or more]] less than 2 % (w/v) of the nutrient medium.

53. (Currently Amended) The method of claim [[50]]66, wherein the lactose is between 1 [[wt]] % (w/v) and [[6 wt %]] 2% (w/v) of the nutrient medium.

54. (Currently Amended) The method of claim [[50]]66, wherein the lactose is less than 6[[wt]] % (w/v) of the nutrient medium.

55. (Currently Amended) A method for reproducing somatic embryos by somatic embryogenesis comprising

growing on a nutrient medium an immature embryogenic culture derived from an explant, the [on a] nutrient medium selected from the group consisting of maintenance medium and prematuration medium; [[wherein]] and the nutrient medium [[comprises]] comprising lactose [[a galactose containing sugar and an additional sugar]];

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wherein the coniferous somatic embryo is selected from the group consisting of *Pinus taeda* or hybrids thereof, *Pinus radiata* or hybrids thereof and *Pseudotsuga menziesii* or hybrids thereof, and

wherein when the nutrient medium is the maintenance medium growing the immature embryogenic culture comprises growing and maintaining [[is used to grow and maintain]] the embryogenic culture, and

wherein when the nutrient medium is the prematuration medium, growing the immature embryonic culture further comprises transferring [[is used to prepare]] the embryogenic culture [[for transfer]] from the prematuration medium to maturation medium [[and]] for subsequent development of mature embryos capable of germination~~[[; wherein the coniferous somatic embryo is selected from the group consisting of *Pinus taeda* or hybrids thereof, *Pinus radiata* or hybrids thereof and *Pseudotsuga menziesii* or hybrids thereof; and wherein the maturation medium does not contain auxin or cytokinin]]~~.

56. (Previously Presented) The method of claim 55, wherein the coniferous somatic embryo is *Pinus radiata* or a hybrid thereof.

57. (Previously Presented) The method of claim 55, wherein the coniferous somatic embryo is *Pseudotsuga menziesii* or a hybrid thereof.

58. (Currently Amended) The method of claim 55, wherein the ~~[[galactose-containing sugar]]~~lactose comprises ~~[[1% wt or more]]~~less than 2%(w/v) of the nutrient medium.

59. (Currently Amended) The method of claim 55, wherein the ~~[[galactose-containing sugar]]~~lactose is between ~~[[1% wt and 6 wt %]]~~1% (w/v) and 2% (w/v) of the nutrient medium.

60. (Currently Amended) The method of claim 55, wherein the ~~[[galactose-containing sugar]]~~lactose is less than 6~~[[wt]]~~ % (w/v) of the nutrient medium.

61. (Canceled)

62. (Previously Presented) The method of claim ~~[[61]]~~64, wherein the somatic embryo is *Pinus radiata* or a hybrid thereof.

63. (Previously Presented) The method of claim ~~[[61]]~~64, wherein the somatic embryo is *Pseudotsuga menziesii* or a hybrid thereof.

64. (New) A method for reproducing conifers by somatic embryogenesis which comprises:

growing *Pinus taeda* conifer cells on a nutrient medium comprising lactose, an auxin, and a cytokinin to produce an immature embryogenic culture; and

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transferring the immature embryogenic culture to maturation medium to obtain mature embryos capable of germination and reproduction of conifers, wherein the maturation medium does not contain of auxin.

65. (New) The method of claim 64, wherein the maturation medium further does not contain cytokinin.

66. (New) The method of claim 1, wherein the nutrient medium further comprises an additional sugar.

67. (New) The method of claim 43, wherein the nutrient medium further comprises an additional sugar.

68. (New) The method of claim 55, wherein the nutrient medium further comprises an additional sugar.

69. (New) The method of claim 64, wherein the nutrient medium further comprises an additional sugar.

### ***Reason for Allowance***

The following is an examiner's statement of reasons for allowance: The evidence submitted by the Applicants specifically Schulz (Arch Microbiol. (1986 145:367-317), Lactose (<http://en.wikipedia.org/wiki/Lactose>), Galactose (<http://en.wikipedia.org/wiki/Galactose>), and Xianghui (Plant Science Letters vol. 21, issue 3, 1981, abstract only) show evidence that lactose is not functionally equivalent to galactose in plants.

With regard to the concentration of lactose, the original specification at page 7, lines 5-10 discloses that the use of galactose-containing compounds such as galactose and lactose may have a concentration less than about 6% and more particularly less than about 2%, and even more particularly between about 1% and about 2% alone or with additional carbon sources.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the

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issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to June Hwu whose telephone number is (571) 272-0977. The Examiner can normally be reached Monday through Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached on (571) 272-0975. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/June Hwu/

Primary Examiner, Art Unit 1661